

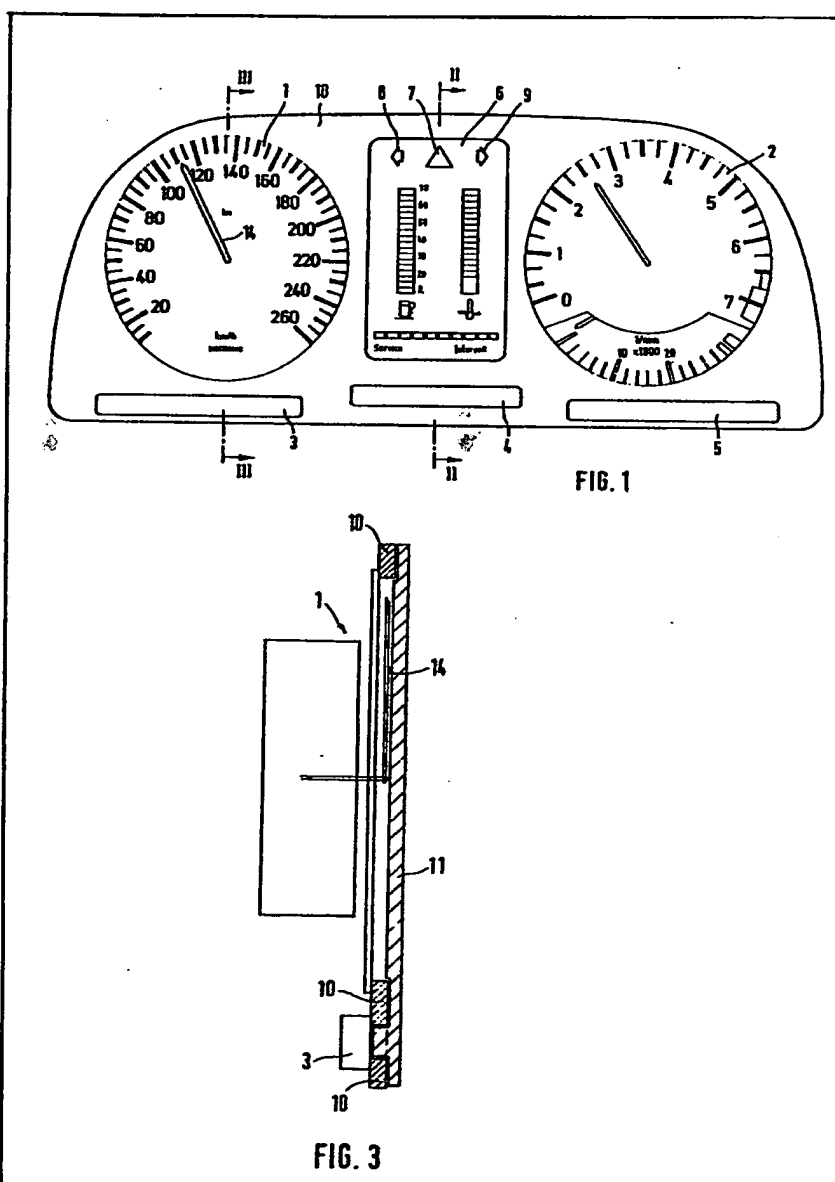
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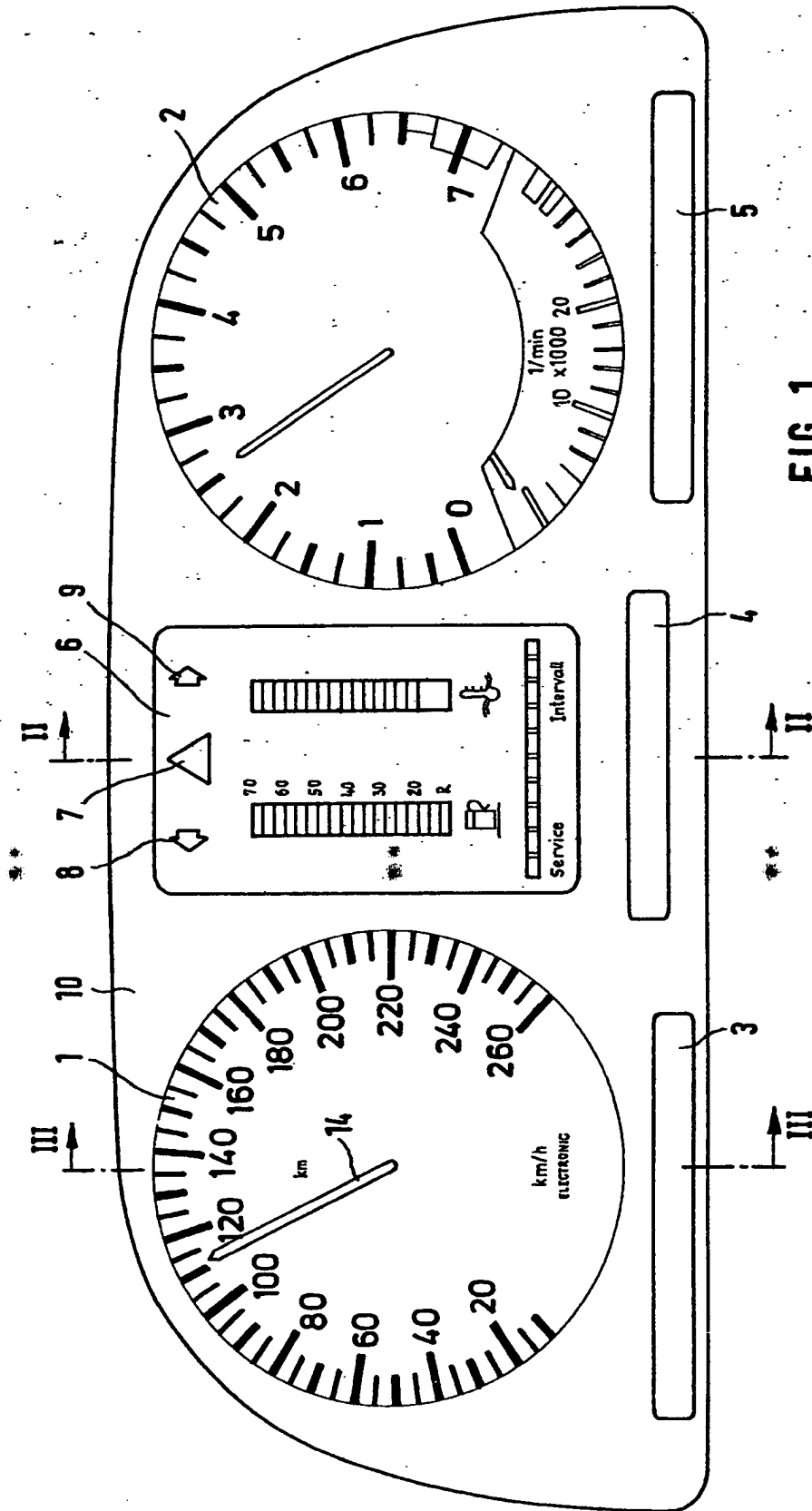
(54) Motor vehicle instrument support assembly

(57) An instrument support assembly for use in motor vehicles, comprises a support panel (10) for a plurality of indicating instruments (1—6) having reading areas located at different heights with respect to the support panel, and a transparent cover sheet (11) on the side of the support panel (10) facing the observer, in which, to

allow the individual instruments to be easily read, the cover sheet (11) is tinted and has a surface on the side facing away from the observer which is of complementary shape to the surface formed by the support panel (10) and reading area or areas of the indicating instruments (1—6) and is spaced a small distance away from the said surface. The cover sheet may be inscribed, and may be tinted locally.



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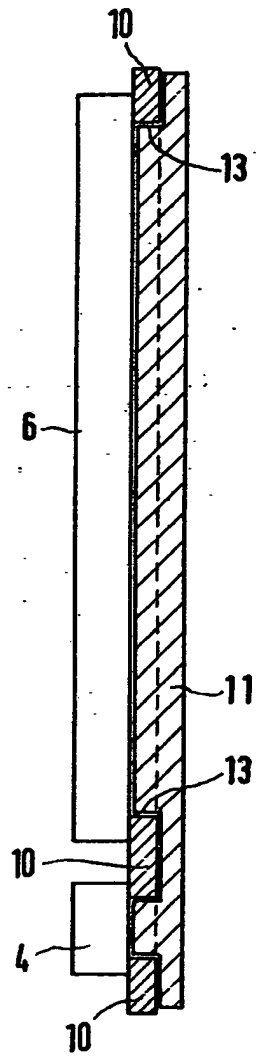


FIG. 2

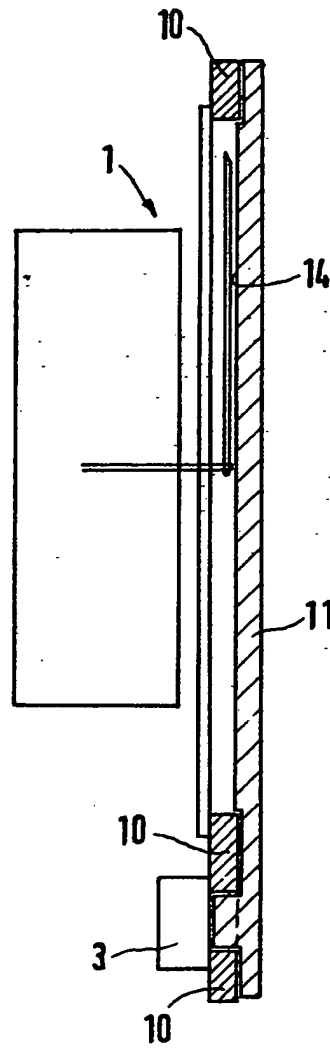


FIG. 3

SPECIFICATION

Motor vehicle instrument support assembly

This invention relates to an instrument support assembly for use in motor vehicles comprising a support panel for a plurality of indicating instruments having reading areas located at different heights with respect to the support panel, and a transparent cover or cover sheet on the side of the support panel facing the observer.

- 10 With such instrument support assemblies, in the form in which they are customarily used, a problem arises if one or more of the indicating instruments are constructed in accordance with conventional techniques, for instance as dial-and-pointer instruments, while one or more of the other instruments are made using modern techniques such as LED or LCD. The problem is that the variable brightness of the instruments, for example of an LCD display in the switched-on and switched-off states, in comparison with the conventional instruments and their variable contrast, may lead to an impairment of readability. Also, the overall appearance of the instrument support assembly may be found to be obtrusive.
- 20 This drawback may also be augmented by the different heights of the reading areas of the instruments with respect to the support panel.

- The present invention allows these drawbacks to be eliminated in a surprisingly simple manner by providing a cover or cover sheet which is tinted and, on the side facing away from the observer, has a surface which is complementary to the surface or surfaces formed by the support panel and the reading area or areas of the indicating instruments, the cover being spaced close to but away from the said surface or surfaces.
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- The differences in level of the instruments can as a result be optically balanced out by the thickness of the cover which is adapted, in its thickness, to the height level of the instrument support assembly or the indicating instruments. As a result, the reading areas of the indicating instruments apparently lie in one plane as far as an observer is concerned. The above-mentioned differences in brightness are also balanced out, namely by the tinting of the cover.
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- Such a cover or cover sheet also gives excellent results as a light-conducting body and makes possible an illumination of the reading areas of the indicating instruments by reflected light. Any local thickening of the cover in the area of the indicating instruments furnishes surfaces generally perpendicular to the surface of the cover which provide excellent light exit surfaces for the light which, as a rule, strikes the cover sideways.
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- The "levelling" effect produced by the cover can be improved still further by tinting the cover so that it has a local intensity complementary to the brightness of the adjoining surface. This means that the local tinting of the cover is intensified as the brightness of the surface underneath the support panel or of any particular
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indicating instrument increases.

- Finally, inscribing of the instruments is made possible in a simple manner with the aid of the cover or cover sheet. This is because the inscription may be provided on the side of the cover facing away from the observer. This single inscription support for all the indicating instruments opens up the possibility of providing a cover with the respectively required inscription specific to a particular country so that different covers associated with different languages and systems of measurement units can be made.
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- 75 Instead of several instruments specific to different countries carrying different inscriptions, all that is required is a different cover.

- A motor vehicle instrument support assembly according to the invention is shown, by way of example, in the accompanying drawings, in which—

Figure 1 is a front view of the instrument support assembly;

Figure 2 is a section taken on the line II—II in

- 85 Figure 1; and

Figure 3 is a section taken on the line III—III in Figure 1.

- The drawings show an instrument support assembly for use in motor vehicles comprising a support panel 10 for two instruments 1 and 2 for speed and engine revolutions respectively and four indicating instruments 3 and 6 designed and constructed using modern techniques which can display symbols indicating, for example, malfunctioning parts of the vehicle or give alphanumerical indications of damaged parts. The indicating instrument 6 is a combined indicator comprising chains of a plurality of juxtaposed light emitting diodes which serve to point out the need for an inspection, the fuel reserve or the coolant temperature. A light 7 serves as a central warning light, while arrows 8 and 9 show the respective positions of the travel-direction indicator.
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- As is shown more especially by Figures 2 and 3, the reading areas of the indicating instruments lie at different height levels with respect to the surface of the instrument support panel 10 holding the indicating instruments 1 to 6. The reading areas of the dial-and-pointer instruments 1 and 2 refer at least to the areas swept by the indicators within their operating regions. These differences in the height and brightness of the instruments produce an obtrusive optical overall impression of the indicator which is ameliorated or eliminated by a transparent cover or cover sheet 11. The cover 11 is constructed in such a way that it is at the minimum possible distance away (for example, between 0.5 and 2.0 mm) from the surface of the support panel 10 or the reading areas of the indicating instruments 1 to 6. Further, it is tinted in a way that is complementary to the brightness of the immediately adjoining surface. In this way the entire instrument support assembly presents a uniform image, and the brightness and
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height differences of the indicating instruments are substantially eliminated. Under these circumstances the indicating instruments can be read with particular ease.

- 5 The cover 11 additionally acts as a light conductor for illumination by reflected light of the indicating instruments 1 to 6. Figure 2 makes clear the special effect produced by the cover or cover sheet. Over the local thickening region of the cover 11 in the area of the indicating instrument 6, the glancing light incidence due to a (not illustrated) source to the light arranged on the side of the cover leads to the light striking the vertical exterior surface 13 of the cover 11 in this region almost vertically. The light can emerge unhindered from the cover and illuminate the reading area of the indicating instrument 6. Additionally, the cover 11 can be corrugated over the entire surface facing the indicating instruments so as to create a labyrinthine connection to the outside, thereby ensuring that the indicating instruments and the instrument support panel are kept free from dust deposits.

- 25 The cover 11, furthermore, serves to bear an inscription. This is shown diagrammatically in Figure 3 at the point denoted by 14 in the area of the dial-and-pointer instrument 1. All that is necessary for instrument support assemblies to be used in different countries is to provide the cover with the respectively required inscription to match the country, while leaving the indicating instrument 1 unaltered.

CLAIMS

1. An instrument support assembly for use in motor vehicles, comprising a support panel for a plurality of indicating instruments having reading areas located at different heights with respect to the support panel, and a transparent cover or cover sheet on the side of the support panel facing the observer, in which the cover is tinted and, on the side facing away from the observer, has a surface which is complementary to the surface of surfaces formed by the support panel and the reading area or areas of the indicating instruments and is spaced close to but away from the said surface or surfaces.

2. An instrument support assembly according to claim 1, in which the tinting of the cover is of a local intensity complementary to the brightness of the adjoining surface.

3. An instrument support assembly according to claim 1 or claim 2, in which the cover carries an inscription of the indicating instruments on its side facing away from the observer.

4. An instrument support assembly according to any one of claims 1—3, in which the cover is spaced away from the surface or surfaces formed by the support panel and the reading area or areas of the indicating instruments by a distance of between 0.5 to 2.0 mm.

5. An instrument support panel substantially as described herein with reference to the accompanying drawings.